CLAIMS

What is claimed is:

1. A computer implemented real-time collaborative geophysical data analysis method comprising:
maintaining a plurality of instances of a group state on a corresponding plurality of interconnected clients;
generating a plurality of geophysical analysis events on each of the clients;
transmitting a parameterized description of each the events from a generating client to a rest of the plurality of clients;
updating the plurality of instances of the group state to reflect each of the events; and
using the group state to generate on each of the clients a display of a geophysical data set reflecting the plurality of events, to enable users of the plurality of the clients to collaboratively visualize and modify the display of the geophysical data set substantially simultaneously.

2. The method of claim 1, wherein the plurality of events includes a set of identities of geophysical image pages to be displayed.

3. The method of claim 2, wherein the plurality of events further includes a set of geophysical data picks.

4. The method of claim 3, wherein the plurality of events further includes a set of alterations of a geophysical velocity model.

5. The method of claim 4, wherein the plurality of events further includes a set of cursor positions for a plurality of cursors, each cursor being associated with one of the clients.

6. The method of claim 1, wherein the plurality of events further includes a set of geophysical data picks.

7. The method of claim 1, wherein the plurality of events further includes a set of alterations of a geophysical velocity model.

8. The method of claim 1, wherein the plurality of events further includes a set of cursor positions for a plurality of cursors, each cursor being associated with one of the clients.

9. The method of claim 1, wherein transmitting the parameterized description is performed directly from the generating client to the rest of the plurality of clients over peer-to-peer connections, without an intermediation of a central server.

10. The method of claim 1, wherein the plurality of clients are interconnected over a wide area network.

11. The method of claim 10, wherein generating the display on each of the clients is performed within 10 ms of a transmission of a latest event.

12. The method of claim 1, further comprising:
maintaining on the plurality of clients a corresponding plurality of instances of a list of client event generators that are members in a collaboration room, and
multicasting the parameterized description only to client event generators on the list.

13. A computer implemented real-time collaborative geophysical data analysis method comprising:
generating a first geophysical analysis event in response to a first user command on a first client of a plurality of interconnected clients;
transmitting a parameterized description of the first event from the first client to a rest of the plurality of clients;
receiving at the first client a parameterized description of a second event generated by a second client of the plurality of clients; and
automatically generating on the first client a display of a geophysical data set reflecting the first event and the second event, to enable users of the first client and

second client to collaboratively visualize and modify the display of the geophysical data set substantially simultaneously.

14. The method of claim 13, further comprising automatically generating on the rest of the plurality of clients a corresponding plurality of displays of the geophysical data set reflecting the first event and the second event.

15. The method of claim 13, wherein the first event is a cursor position, and wherein the parameterized description of the first event includes a set of coordinates for the cursor position.

16. The method of claim 13, wherein the first event is an identification of a geophysical image section to be displayed.

17. The method of claim 13, wherein the first event is a geophysical data pick.

18. The method of claim 13, wherein the first event is an alteration of a geophysical velocity model.

19. The method of claim 13, further comprising enforcing among the plurality of clients a synchronization of a group state reflecting the first event.

20. The method of claim 13, further comprising sending from the first client a geophysical data processing command to a geophysical data processing server connected to the first client over a wide area network connection, for directing the server to perform geophysical data processing on the geophysical data set, wherein the geophysical data processing command includes a flow description comprising identifications of an ordered plurality of geophysical data processing modules for performing the geophysical data processing.

21. The method of claim 13, further comprising:
receiving from a third client of the plurality of clients a parameterized description of a third event generated by the third client; and

automatically generating on the first client a display of a geophysical data set reflecting the first event, the second event, and the third event.

22. The method of claim 13, wherein the plurality of clients are interconnected over a wide area network.

23. The method of claim 22, wherein automatically generating the display on the first client is performed within 10 ms of a multicasting of the second event by the second client.

24. The method of claim 13, wherein transmitting the parameterized description is performed directly from the first client to the rest of the plurality of clients over peer-to-peer connections, without an intermediation of a central server.

25. A computer implemented real-time collaborative geophysical data analysis method comprising:

generating a plurality of first geophysical analysis events in response to corresponding user commands on a first client of a plurality of interconnected clients;

transmitting parameterized descriptions of the plurality of first geophysical analysis events from the first client to a rest of the plurality of clients over the set of network connections;

receiving from a second client of the plurality of clients parameterized descriptions of a plurality of second geophysical analysis events generated by the second client; and

automatically generating on the first client a display of a geophysical data set reflecting the plurality of first event and the plurality of second events, to enable users of the first client and second client to collaboratively visualize and modify the display of the geophysical data set substantially simultaneously.

26. The method of claim 25, wherein the plurality of events includes a set of identities of geophysical image pages to be displayed.

27. The method of claim 26, wherein the plurality of events further includes a set of geophysical data picks.

28. The method of claim 27, wherein the plurality of events further includes a set of alterations of a geophysical velocity model.

29. A computer system programmed to perform a real-time collaborative geophysical data analysis method comprising:

generating a first geophysical analysis event in response to a first user command on a first client of a plurality of interconnected clients;

transmitting a parameterized description of the first event from the first client to a rest of the plurality of clients;

receiving at the first client a parameterized description of a second event generated by a second client of the plurality of clients; and

automatically generating on the first client a display of a geophysical data set reflecting the first event and the second event, to enable users of the first client and second client to collaboratively visualize and modify the display of the geophysical data set substantially simultaneously.

30. The computer system of claim 30, the method comprising automatically generating on the rest of the plurality of clients a corresponding plurality of displays of the geophysical data set reflecting the first event and the second event.

31. The computer system of claim 29, wherein the first event is a cursor position, and wherein the parameterized description of the first event includes a set of coordinates for the cursor position.

32. The computer system of claim 29, wherein the first event is an identification of a geophysical image section to be displayed.

33. The computer system of claim 29, wherein the first event is a geophysical data pick.

34. The computer system of claim 29, wherein the first event is an alteration of a geophysical velocity model.

35. The computer system of claim 29, the method further comprising enforcing among the plurality of clients a synchronization of a group state reflecting the first event.

36. The computer system of claim 29, the method further comprising sending from the first client a geophysical data processing command to a geophysical data processing server connected to the first client over a wide area network connection, for directing the server to perform geophysical data processing on the geophysical data set, wherein the geophysical data processing command includes a flow description comprising identifications of an ordered plurality of geophysical data processing modules for performing the geophysical data processing.

37. The computer system of claim 29, wherein automatically generating the display on the first client is performed within 10 ms of a multicasting of the second event by the second client.

38. The computer system of claim 29, the method further comprising:
receiving from a third client of the plurality of clients a parameterized description of a third event generated by the third client; and
automatically generating on the first client a display of the geophysical data set reflecting the first event, the second event, and the third event.

39. The computer system of claim 29, wherein the plurality of clients are interconnected over a wide area network.

40. The computer system of claim 29, wherein transmitting the parameterized description is performed directly from the first client to the rest of the plurality of clients over peer-to-peer connections, without an intermediation of a central server.

41. A computer-readable medium encoding instructions to perform a real-time collaborative geophysical data analysis method comprising:
generating a first geophysical analysis event in response to a first user command on a first client of a plurality of interconnected clients;
transmitting a parameterized description of the first event from the first client to a rest of the plurality of clients;

receiving at the first client a parameterized description of a second event generated by a second client of the plurality of clients; and

automatically generating on the first client a display of a geophysical data set reflecting the first event and the second event, to enable users of the first client and second client to collaboratively visualize and modify the display of the geophysical data set substantially simultaneously.

42. A real-time collaborative geophysical data analysis apparatus comprising:

means for generating a first geophysical analysis event in response to a first user command on a first client of a plurality of interconnected clients;

means for transmitting a parameterized description of the first event from the first client to a rest of the plurality of clients;

means for receiving at the first client a parameterized description of a second event generated by a second client of the plurality of clients; and

means for automatically generating on the first client a display of a geophysical data set reflecting the first event and the second event, to enable users of the first client and second client to collaboratively visualize and modify the display of the geophysical data set substantially simultaneously.

43. A computer-implemented real-time collaborative geophysical data analysis method comprising:

selecting a first 2D page of a 3D geophysical data set in response to a first user command on a first client of a plurality of interconnected clients;

transmitting an identification of the first 2D page from the first client to a rest of the plurality of clients;

receiving from a second client of the plurality of clients an identification of a second 2D page of the 3D geophysical data set selected by the second client; and

automatically generating on the first client a display of the first 2D page in response to the first user command, and subsequently a display of the second 2D page in response to the identification of the second 2D page, to enable users of the first client and second client to collaboratively visualize selected 2D pages of the 3D geophysical data set substantially simultaneously.